CLAIMS

What is claimed is:

1. Computer apparatus for managing and sharing engineering data for chemical engineering processes and plants, comprising:

   given one or more software applications of interest and each given application having a respective data model or data view, for each said given application, a class view of the application data model;

   a composite class view formed by a consolidation of the class views; and

   a core conceptual data model having a plurality of routes between attributes in the composite view and attributes in the conceptual data model, wherein the class views are effectively one tier, the composite class views are effectively a second tier and the conceptual data model is effectively a third tier, such that a multi-tier data model with links between corresponding attributes across the tiers results, the multi-tier data model enabling management and sharing of engineering data of the given applications with other process and plant engineering applications such that process engineering and plant operations are enhanced.

2. Apparatus as claimed in Claim 1 further comprising an amalgamator for synthesizing the class views, composite class views and conceptual data model into a consolidated multi-tier data model.

3. Apparatus as claimed in Claim 1 further comprising a mapper for linking the conceptual data model attributes to the composite class view and the composite class view attributes to application class views, such that there is a one-to-one mapping between an attribute in the composite class view and a route in the conceptual data model to corresponding given applications from which the attribute originated.

4.   Apparatus as claimed in Claim 3 wherein each class view is represented in terms from the respective given application such that an end user of said given application is able to access data from the conceptual data model.

5   5.   Apparatus as claimed in Claim 1 wherein the class views, composite class views and conceptual data model are represented by object oriented programming elements.

6.   Apparatus as claimed in Claim 5 wherein certain object oriented programming
10   elements are defined by classes; and

     the apparatus further comprising a class library editing subsystem for enabling user creation and editing of definitions of classes.

7.   Apparatus as claimed in Claim 6 wherein the class library editing subsystem
15   employs XML.

8.   A method of data modeling, comprising the computer implemented steps of:

     (a) forming a multi-tier data model with links between corresponding attributes across tiers, a first tier being formed by:
20   for each of multiple given software applications of interest and having a respective data model, providing a practitioner's view of the given application using a respective class view of the application data model;

     a second tier being formed by consolidating class views into a composite class view ; and
25   a third tier being formed by forming a conceptual data model having a plurality of routes between attributes in the composite view and attributes in the conceptual data model; and

     (b) using the multi-tier data model, enabling sharing of engineering data of the given applications with other process and plant engineering routines.

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9.   A method as claimed in Claim 8 wherein the second tier is further formed by synthesizing the class views into the composite class view.

10.   A method as claimed in Claim 8 wherein the step of forming a multi-tier data

5   model further includes producing a one-to-one mapping between an attribute in each application class view to the composite class view, and a one-to-one mapping between an attribute in the composite class view and a route in the conceptual data model to corresponding given applications from which the attribute originated.

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11.   A method as claimed in Claim 8 wherein the step of providing a practitioner's view includes in each class view, representing the application data model in terms from the respective given application.

15   12.   A method as claimed in Claim 8 further comprising the step of representing at least one of the class views, the composite class view and the core model in terms of object oriented programming elements.

13.   A method as claimed in Claim 12 wherein certain object oriented programming

20   elements are defined by classes; and
            the method further comprising the step of enabling user creation and edition of definitions of classes.

14.   A method as claimed in Claim 13 wherein the step of enabling user creation and

25   edition includes employing XML interfaces.

15.   A computer program product comprising:
        (a) a computer usable medium for managing engineering data; and
        (b) a set of computer program instructions embodied on the computer usable

30   medium, including instructions to:

provide a respective class view for each of plural given software applications of interest and having a respective data model, each class view being of the respective application data model;

form a composite class view from the class views;

5   form a conceptual model; and

form a consolidated multi-tier data model from the application class views, composite class view and the conceptual model such that sharing of engineering data of the given applications is enabled.

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